

INLINE MONITORING OF PAD LOADING FOR CuCMP AND DEVELOPING
AN ENDPOINT TECHNIQUE FOR CLEANING

Abstract of the Disclosure

A system of cleaning a CMP pad used for removing copper from a substrate, the system
5 comprising an abrasive cleaning pad, a cleaning solution delivery system that delivers a
cleaning solution, an analyzing system that monitors the characteristics of the cleaning
solution optically and chemically, and a carriage that allows the analyzing system to
monitor the cleaning solution at a plurality of locations on the CMP pad. The use of the
abrasive cleaning pad and the cleaning solution removes contaminants from the CMP
10 pad, and the contaminants are dissolved in the cleaning solution. By measuring the
concentration of contaminants in the cleaning solution, the condition of the CMP pad
can be monitored. To measure the concentration of the contaminants, changes in the
refractive index and absorption of light in the cleaning solution are measured, wherein
the refractive index and absorption depend on the concentration of the contaminants.
15 The concentration of the contaminants in the cleaning solution is also measured
chemically. Knowing the actual condition of the CMP pad during the cleaning process
allows for improved condition of the CMP pad.

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